In this semester project, you are asked to design, develop, and test an information system for the chinook database as a front-end web site to allow for:

- Customers that have capabilities that include: register, create, and manage an account; set and management various payment types; the ability to look up information by track name, album name, artist name, composer name, genre name, and/or media name; the capability to create/review/modify his/her playlist (MyPlaylist and MyPlaylistTrack for Phase I); and, to place an order for one or more playlists or tracks.

- Employees that have capabilities that include: entering new media that includes track name, album name, artist name, composer name, genre name, millisecond, bytes, and/or media name- this means new artists, albums, genres, mediatype, and tracks; create/review/modify playlists (stored into Playlist and PlaylistTrack); review information on each customer including a customer’s demographics and play list; and, interact with customers to approve each “order” of customer which involves generating the invoice.

- Administrative employees that have capabilities that include all of the Employee capabilities plus: the ability to run a wide range of reports on overall sales by month, by durational period (start and end date), by city and/or state and/or country; reports on sales of customers by month, by durational period (start and end date), by city and/or state and/or country; reports on employee productivity by employee and broken down on a customer by customer basis which includes data such as the number of customer(s) per employee and sales of those customer(s) by employee also by month or durational period (start and end date); and, inventory reports on by track name, album name, artist name, composer name, genre name, and/or media name.

The remainder of this Phase II assignment specifies and explanation additional requirements.

Conceptual design is a combination of requirements analysis, software engineering, and database design, which can be utilized to arrive at a functional and data driven characterization for a Chinook web app, a search, ordering, and inventory website that is being set up with the objective of providing the best services to its customers by keeping their services at the leading edge of technology. This is clearly a norm for many of the various e-business web sites. You have been hired to set-up an information system and associated user interfaces to assist Chinook web app in achieving its goals. A preliminary requirements analysis has been conducted below that has identified a number of characteristics and features the operations (business processes) and goals of Chinook web app. You, as the systems analyst/designer/engineer, are strongly encouraged to add, expand, and refine these requirements in order to achieve a richer design.

For this project, you will develop an information management system that supports some of the services involved in searching, ordering, and inventory for a media app backended by the Chinook database. In the following pages, the functionality of Chinook web app is discussed with examples given using another application to demonstrate the different types of screens. using figures and a discussion of the flow that exists to take a user from screen to screen. Remember, the requirements in this document are a baseline and can be enhanced with additional capabilities as part of your requirements analyses and your solution choices.

Note that the PPT file at (http://www.engr.uconn.edu/~steve/Cse4701/SampleScreens.docx) contains a set of sample screen shots from last semester in the UConn Job Search project (http://www.engr.uconn.edu/~steve/Cse4701/cse4701spr15proj.pdf) from three of the teams that are illustrative of major types of user interface screens including: login/registration/edit info
screens; the main profile screen for users (akin to Customers in Chinook schema); a screen for data entry to create new jobs (akin to create a new Track/Album in Chinook schema); a screen for searching for jobs (akin to searching by artist, title, album, genre, etc.) ; and a report generation screen (akin to reports for administration as described above.

LOGIN/REGISTRATION/EDIT SCREENS

The Chinook web app needs to have login, registration, and edit screens for customers as shown in Figure 1 from the UConnJob Search example. Note that you should conform to the required fields to the Customer entity of the Chinook Schema. There are separate screens needed to:

1. Register for an account on the web app.
2. Login to a registered account (but no need for password recovery)
3. Edit/Modify your profile.

In support of registration, you need to allow entry of: First and Last Names, Company Name (optional), Address/City/State/Country/Postal Code, Phone, Fax, and Email. All of the other data entry fields are required.

![Figure 1. Login/Registration/Edit Screens](image)

DASHBOARD SCREEN

When a Customer or Employee logs on to the Chinook Web app, there should be a main screen that displays a dashboard of the main actions for each. Figure 2 displays this dashboard for job seekers in the UConnJobSearch. The general activities include:

- Customer Dashboard Screen:
  - Buttons to log off, edit profile (goes to another screen), and set/edit payment types (goes to another screen).
  - List of active and completed orders where clicking an order goes to another screen to show the status and content of each order.
CSE4701 Introduction to Databases - Fall 2015 Semester Project
Phase II – Chinook Web Application Capabilities and Final Requirements

- Quick Search in order to look up by media type and artist name.
- Link to a screen that for a Customer to create/manage/modify his/her playlists (new MyPlaylist and MyPlaylistTrack entities/tables) which involves detailed searching of tracks by track name, album name, artist name, composer name, genre name, and/or media name.
- Link to Order Screen that lets a customer select a playlist to order (from MyPlaylist or Playlist) or as selected by track via the detailed searching of tracks by track name, album name, artist name, composer name, genre name, and/or media name. The Order screen is tied to a Shopping Cart.

- Employee Dashboard Screen:
  - Button to log off.
  - List of Active Customer Order (to be filled) where clicking an order goes to another screen to show the status and content of each order. This will involve processing the order and interacting with customers on screen that is enabled from the click.
  - Links to separate screens for: Enter/Edit New Media Screen and Review Customer Demographic Screen.
  - Link to a screen to create/manage/modify his/her playlists (new Playlist and PlaylistTrack entities/tables) maintained by the Chinook web app which involves detailed searching of tracks by track name, album name, artist name, composer name, genre name, and/or media name.

Remember, that part of your design effort is to determine additional features/characteristics.

CUSTOMER SCREENS

There are a set of screens for customer including:
• Edit Profile Screen – see Figure 1 again
• Set/edit payment types Screen – design a screen that lets a customer choose credit card, check, paypal, Google Pay, and Apple Pay options.
• Pending/Completed Orders and Status Screen – this should drill down to one order in a read only mode to view a specific order when reached from the selection on the Customer Dashboard.
• Create/Manage MyPlaylists: A screen that for a Customer to create/manage/modify his/her playlists (new MyPlaylist and MyPlaylistTrack entities/tables) which requires detailed search capabilities for tracks (by track name, album name, artist name, composer name, genre name, and/or media name.). This will display a list of a customer’s play list and when clicking upon a list will show all of the tracks. This has the ability to modify an existing play list (add or remove tracks or remove the entire playlist). This also has the ability to create a new named play list which will allow the customer to perform a detailed search and select tracks. The Search Screen, as shown in Figure 3 for the UConn Job Search, the upper left should have a set of options to search media, by name, artist, composer, genre, media, and/or composer; and, based on the values, return the results. You will need to support multiple pages for the result sets since there can be many results based on the search criteria.
• Order Screen: A screen for that lets a customer select a playlist to order (from MyPlaylist or Playlist) or as selected by track via the detailed searching of tracks by track name, album name, artist name, composer name, genre name, and/or media name. The Order screen is tied to a Shopping Cart. You need to decide the way for customers to select either playlists (their own in MyPlaylists or in Playlists) or from tracks that are then included in a shopping cart.
• Shopping Cart Screen – to show the items that are being placed for potential order. Time permitting, you should add the ability to edit the order (remove tracks) but this is not an immediate initial features.

EMPLOYEE SCREENS

There are a set of screens for employee including:
• Active Order Screen - where clicking an order from the dashboard goes to another screen to show the status and content of each order. This should have a similar content and structure to the “Pending/Completed Orders and Status Screen” of the Customer. This will also involve additional capabilities for processing the order and interacting with customers on screen that is enabled from the click.

• Enter/Edit New Media Screen – as shown in Figure 4 for the UConnJobSearch app, there needs to be a screen to enter all of the information on a new media item including: track name, album name, artist name, composer name, genre name, and/or media name; this means entering new artists, albums, genres, media types, and tracks. You may also need to add new track names as well.

• Create/Manage Playlists: A screen that for an Employee to create/manage/modify playlists (nPlaylist and PlaylistTrack entities/tables) for the Chinook web app, which requires detailed search capabilities for tracks (track name, album name, artist name, composer name, genre name, and/or media name). This has the ability to modify an existing Chinook playlist (add or remove tracks or remove the entire playlist). This also has the ability to create a new named Chinook playlist which will allow the Employee to perform a detailed search and select tracks. The Search Screen, as shown in Figure 3 for the UConn Job Search, the upper left should have a set of options to search media by track name, album name, artist name, composer name, genre name, and/or media name, return the results. You will need to support multiple pages for the result sets since there can be many results based on the search criteria.

• Review Customer Demographic Screen – this screen should be similar to the edit profile screen (see Figure 1 again) but it should include the ability to search for a customer by different means. This could include any of: First and Last Names, Company Name, Address/City/State/Country/Postal Code, Phone, Fax, and Email; whatever seems appropriate.
ADMINISTRATIVE SEARCH SCREENS:

The Administrator Dashboard Screen will contain all of the capabilities of the Employee Dashboard Screen previously described with additional capabilities and screens that include:

- Ability to access the Employee: Active Order Screen, Enter/Edit New Media Screen, and Review Customer Demographic Screen.
- Four Main Reporting Screens for:
  - Sales Reporting: A screen that has the ability to run a wide range of reports on overall sales by month, by durational period (start and end date), by city and/or state and/or country; reports on sales of customers by month, by durational period (start and end date), by city and/or state and/or country
  - Employee Productivity Reporting: A screen that has the ability to run a wide range of reports on employee productivity by employee and broken down on a customer by customer basis which includes data such as the number of customer(s) per employee and sales of those customer(s) by employee also by month or durational period (start and end date)
  - Inventory Reporting: A screen that has the ability to run a wide range of reports on media by name, artist, composer, genre, media, and/or composer. Note that all of the inventory is only electronic versions since there are not hard copies/quantities (e.g., no actual CDs or DVDs). These can be summary reports by artist name, by compose, genre, etc.
  - Customer Reporting: A screen that has the ability to run a wide range of reports on the interests of customers in terms of music and media preferences. This can include looking at what a specific customer prefers (in terms of track name, album name, artist name, composer name, genre name, and/or media name), or might be statistical analysis across multiple customers to determine preferences by state and/or country. Each Group is tasked with defining the scope of customer reporting for their project.
To illustrate the search screen, Figure 5 contains a reporting screen that allows searching in different queries – specifically, there are 12 separate queries (see the Search buttons in Figure 5) and the results displayed at the bottom of the page. In this approach, there were specific parameterizable queries that were defined and then implemented. Another approach could be utilized to have a set of selection criteria that are then chosen by the user and a query is formulated and submitted. For the three main screens, specific requirements could include the following. Note that a number of different searching dimensions are identified.

- **Sales Reporting:** There are a number of dimensions that can be used singularly or combined. The *duration* dimension would support search by day, month, year, or date range. The *location* dimension would support by city/state/country. The *media* dimension would allow different combinations of: track name, album name, artist name, composer name, genre name, and/or media. The *customer* dimension would include: single customer, set of customers (selected by administrator), customers in a city, customers in a state, customers in a country. Any one or more could be combined. The sales reporting would be taken from the Invoice and InvoiceLine Tables for the appropriate costs (sales can be total or broken down – another dimension) which could include both the UnitPrice (Track) as well as the total Sales (all UnitPrices for all tracks) and the Quantity (InvoiceLine Table).

- **Employee Productivity Reporting:** Run reports on a given employee that has selections by: number of customer(s) per employee and sales of those customer(s) by employee also by month or durational period (start and end date). The report needs to work for all combinations. These reports focus on the sales/productivity for a particular employee. This would include the duration, location, media, and customer dimensions from the Sales Reporting.

- **Inventory Reporting:** Drop down selections for: A screen that has the ability to run a wide range of reports on media by track name, artist, composer, genre, media, milliseconds, bytes, and/or composer. These can be summary reports by artist name, by compose, genre, etc. The report needs to work for all combinations. This is utilizing the media dimension.

- **Customer Reporting:** A screen that has the ability to run a wide range of reports on customer buying preferences. The *customer* dimension would include: single customer, set of customers (selected by administrator), customers in a city, customers in a state, customers in a country. The *media* dimension would be the scope of the query in terms of: track name, album name, artist name, composer name, genre name, and/or media name. As defined, the customer dimension also includes location dimension characteristics. The *duration* dimension would support search by day, month, year, or date range to look at buying trends during holidays, during slow months, etc.
Note that there may be additional details on reports forthcoming. As an example, below are the detailed reports from UConn Job Search – some of which are canned (summary reports) other that are based on search criteria. For each report listed below, the input to drive the report is also stated:

1. Display a summary of the name, address, and email of all job seekers, alphabetically by the state they reside.
2. When a last name of a seeker is entered, display all of the jobs that the seeker has applied for, listing the last name, first name, company name, job id, job list date, and job title. Note that there may be multiple results since the last name is not unique.
3. When a company name is entered, display all of the jobs (id, list date, and title) for that company, including the fill status, alphabetically by job title.
4. When a date range (start and end date) is entered, display all of the jobs newly listed, including the company name, job id, job list date, and job title.
5. When given a salary value and a job title, display all of the jobs including: company name, job id, job list date, and salary.
6. When given a job id, display all of the seekers (name, address, email).
7. When given a university/college name, display all of the seekers (name, address, email) who attended that university and obtained a bachelors degree.
8. Generate a payment report for UConnJobSearch that is initiated by a date range (start and end date) and includes the payment ID, Payment amount, Payment status, payment type (invoice, credit card or bank), and payment date, for all jobs listed between that date range.

9. When given a list of one or more skills (see Figure 14), display all of the jobs (job id, job list date, and job title) that have at least one of the skills on the list.

10. When given a list of one or more skills (see Figure 14), display all of the seekers (name, address, email) that have all of the skills on the list.
FINAL REPORT REQUIREMENTS

The final report, due at end of the third phase, should be an integrated report. For the list of relational instances you use to populate your database, you should take data from a realistic situation, and make sure that your data shows some variety. The report for Phase II must include the following six components:

1. A description of the purpose of this phase of the project and the list of tasks, a summary of the system requirements and any additions or any revisions made to the specification and the design in the previous two phases,

2. The description of the list of problems encountered and your solutions.

3. The system architecture, and the design and description of all functions, including the list of required ones and the list of functions that your group add into the UConnJobSearch.com system.

4. A User Manual that illustrates the way that each main component of your solution works. Include screen shots as figures to illustrate the various activities by seekers, posters, and administrators.

5. The conclusion that evaluates the system you have implemented, the current limitations and the potential for improvements.

6. Each team member will provide an updated description on your contributions to the group project and what you learned from this project and the team work. This is the individual contributions on the web page. In addition, each of you must confidentially submit the final self-assessment by email to steve@engr.uconn.edu without consulting any of your team members. This information is advisory only!

7. The collection of all of the submittals for the project, including: Phase I report and Phase II report which includes (1) the GROUPZChinook.sql File, (2) the source code of the application, and (3) the relational instances you use to populate the database, (4) a sample output of the UConnJobSearch.com query and update programs, including the summarization outputs, and an attachment of a user manual for the system.

A hard copy of all the above components is expected – due date to be announced. Together with the hard copy of your final project report, you need to turn in the report and the source code in electronic form using a winziped file. A more precise rundown of the final requirement will be given two weeks before the project is due.

Remember, it is critical that you put together a professional, well-organized document of your project. Sample final (Phase II) reports will be distributed in the coming weeks.